Volunteer Firemen

SEPTEMBER 1942

NATIONAL FIRE PROTECTION ASSOCIATION
60 Batterymarch Street INTERNATIONAL Boston, Massachusetts

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How to Fight FIRE BOMBS

OFFICIAL INSTRUCTIONS
U. S. Office
of Civilian Defense

These new instructions are based on exhaustive research by technicians of OCD and the Chemical Warfare Service, U. S. Army. They represent changes now adopted also by British officials after careful analysis of the results of both this and the old method during actual air raids. Both American and British tests prove that *a jet of water,* as illustrated below, will knock out the fire bomb in less than one minute—before major fires can get started. Fire (not the bomb) is the chief danger, and a jet of water is the best weapon. ***Respect the fire bomb but do not fear it.***

BRING YOUR FIRE-FIGHTING EQUIPMENT TO THE SCENE QUICKLY

The small magnesium bomb, which is dropped in great numbers, will go through any ordinary roof. Store your equipment where it can be reached easily, and keep it ready for instant use.

SHOOT A JET OF WATER ON THE BOMB AT ONCE

Take cover behind a door, chair, or other furniture, if you can, when you do this. The jet knocks the bomb out quickly. There will be a burst of white flame, and a scattering of molten metal, most of which will be driven away from you by the force of the jet.

QUENCH PROMPTLY THE REMAINS OF BOMB AND ANY OTHER FIRES

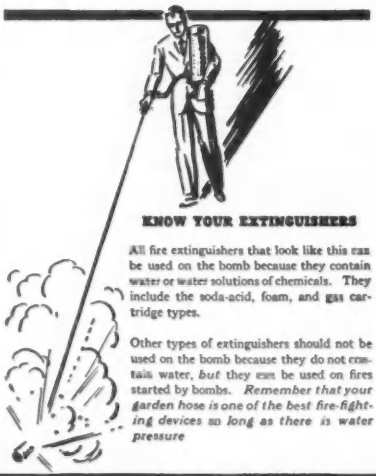
If any small fires are started the jet will put these out easily. Within a short time you will be free to attack any other bombs which may have fallen nearby. ***Be absolutely sure all the fire is out before you leave.***

THE PUMP TANK HOLDS ENOUGH WATER TO PUT OUT TWO BOMBS WHEN JET IS USED

This is the 4-gallon pump tank extinguisher which the Office of Civilian Defense will distribute in target areas to the air raid warden service. The tank can be refilled while the pump is being used.

JET MAY PREVENT ACTION OF BURSTER

Some bombs have a small burster attachment. When the jet is used promptly, the bomb may be destroyed before the charge goes off.



KNOW YOUR EXTINGUISHERS

All fire extinguishers that look like this can be used on the bomb because they contain water or water solutions of chemicals. They include the soda-acid, foam, and gas cartridge types.

Other types of extinguishers should not be used on the bomb because they do not contain water, *but* they can be used on fires started by bombs. *Remember that your garden hose is one of the best fire-fighting devices so long as there is water pressure*

USE SAND ONLY IF A BOMB FALLS WHERE IT CANNOT START A FIRE OR IF WATER IS NOT AVAILABLE

This can be done by dropping a bag of sand over the bomb, or by the shovel-and-bucket technique.

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Volume 9 Number 9

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EVERY FIRE HELPS THE AXIS. PREVENT FIRES!

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THE importance of fire prevention in our war effort has probably never been better expressed than in the picture on the front cover of this issue of VOLUNTEER FIREMEN. "Today Every Fire Helps Hitler" is a truth which should be the theme of all fire prevention efforts throughout the coming winter. As we prepare in each community to fight fires which may be started by enemy incendiary bombs, we must remember that each day in the United States on the average almost a million dollars worth of property is destroyed by fires due to our own carelessness. In proportion, the fire losses of Canada are equally grave. Certainly, such wanton destruction of our vital resources is a tremendous help to Hitler and the other international outlaws.

ON the opposite page are presented revised instructions on the technique for handling incendiary bomb fires recently issued by OCD. These are of interest because they stress the importance of using a jet of water to dispose of bombs quickly in order that any fires caused by the bombs may be brought under control without delay. The old idea of using a fine spray of water to control the burning magnesium bomb was good if the bomb landed in a location where the application of a stream would tend to scatter molten magnesium and start additional fires. The earlier instructions were those issued in Great Britain prior to the actual fire bomb raids experienced in this war. The British found out, however, that where bombs landed by the dozen or more, the spray method was too slow. While a "gentle spray" was being directed toward one bomb by the three-man or three-lady crew of a stirrup pump, good sized fires often were started by other bombs that did not get this professional attention. Finally, the practical British fire fighters appealed for official permission to "sock" the bombs with a good jet of water in typical fire fighter fashion. They wanted to get rid of the bombs as fast as possible. They could then give their attention to the much more important fires started by these little missiles. The new British point of view is now recognized by OCD.

WORTHY of mention is the fact that the new OCD instructions apply only to the small magnesium type of incendiary bomb. No such bombs have as yet been dropped on the American Continent. None were used in the attacks on Hawaii or the Aleutians according to reliable reports. Defense forces will do well to be on the alert to control fires regardless of the type of bomb that may be used to cause such fires. Thermite bombs, oil bombs, phosphorus bombs are other known types of incendiary devices designed to cause fires. Fires frequently follow the use of demolition bombs, as incidental damage.

Our enemies would, no doubt, like to have our fire fighters concentrate all their attention on the technique for handling one particular type of bomb. They could then come over with something entirely different and try to catch our fire fighters off guard. The big job is to be ready to fight all wartime fires whether caused by sabotage or by the numerous types of fire bombs. A still bigger job is to eliminate all possible causes of fires that are hindering our war effort. Most fires are caused by our own carelessness. That is why we have Fire Prevention Week next month to eliminate the fire causes that, while not the result of enemy action, are nevertheless aiding our enemies by slowing production and destroying vital goods.

THE editors of VOLUNTEER FIREMEN have previously pointed out that there are about as many methods of putting out incendiary bombs as there are of putting out matches. Like matches, the burning bomb is very much secondary to the fire that it is designed to start. Accordingly, the exact method used to put out the actual bomb is only important insofar as it enables the fire fighter to more speedily dispose of any fire which the bomb may have started, and further provided that the fire fighter knows how to avoid personal injury.

Bombs may be disposed of by use of various extinguishing agents employing a water solution or may be smothered sufficiently with dry sand or other inert material to permit them to be removed with relative safety. The solid stream disposes of a bomb faster than the spray and is now recommended. About the fastest method for controlling incendiary bombs is the dunking method employed by the Chicago Fire Department as reported in VOLUNTEER FIREMEN last month.

THIS issue of VOLUNTEER FIREMEN marks the start of our tenth year of publication, as the first issue of the magazine was dated September 1933. At the present time more than fifteen thousand individual volunteer firemen (15,027 to be exact) are receiving the magazine, each month through the 751 fire departments enrolled in the N.F.P.A. Volunteer Firemen's Section. Last month 31 fire companies with a total of 648 men renewed their membership in the section. The following fire companies are new members:

Dania Fire Department, Dania, Florida.
Vermillion Mining Company, Ely, Minnesota.
West Columbia Fire Department, West Columbia, Texas.

THE estimated U. S. fire loss for July, 1942, according to the National Board of Fire Underwriters, is $21,000,000, a decrease of $2,698,000 from the same month last year. Losses for the first seven months of 1942 were $3,841,000 above the same period of 1941. These figures are based on notices of incurred loss received by insurance companies, members of the board, plus an allowance for unreported and uninsured losses. The following table shows the losses for the first seven months of 1941 and 1942.

	1941	1942
January	$26,470,000	$35,565,000
February	26,102,000	30,819,000
March	31,471,000	30,505,000
April	29,330,000	27,960,000
May	25,637,000	23,233,000
June	24,943,000	22,410,000
July	23,698,000	21,000,000
Total 7 months	$187,651,000	$191,492,000

Water Valve Operation Under Emergency Conditions

IN a letter to Engineering News Record magazine A. S. G. Musgrave, Municipal Engineer for Oak Bay, British Columbia, tells of the plan adopted for the control and operation of waterworks valves in the event of an emergency in order that water supplies for fire fighting and other essential purposes may be assured.

Mr. Musgrave says in part:

In this small community of 10,000 people we have close to 400 valves. In the ordinary way, only two men are completely familiar with the location and operation of these valves. As we are in the most vulnerable coast point of Canada it is possible that we may have an air attack that might burst mains in a number of points simultaneously, and also that our two experts might be knocked out.

Visualizing this situation, I had our 400 valves cleaned off and the covers painted bright yellow; then maps were compiled splitting our municipality into 16 areas. Two intelligent residents were chosen from each area and trained as water-wardens, and they were supplied with individual maps of their areas clearly showing each valve and the distance of the main out from property lines. Each valve was given a distinguishing number, and lists were compiled tabulating every block and listing the valves by number which had to be cut off for each individual block in a street.

These "water-wardens" were enrolled under Engineering A.R.P. Services, and their *sole* duty is to be familiar with the location and operation of these valves. Our regular employees who handle these valves gave manual instruction on the ground to these wardens; they were trained how to close valves gently, how to identify cocks from valves, how to listen for hissing noises to confirm whether valves were on or off, and how to identify a serious main burst from a simple house connection burst, and many other points.

I maintain that with this intermediate semi-efficient crew we have much more adequately protected our water supply, for fire fighting, etc. Recently a federal Canadian A.R.P. representative visited us, and was surprised at this organization, and informed me that it was the only one of its kind across Canada. A too-rigid policy of excluding all but experts from handling valves may be one of the ultra-conservative things we have to forget in a war emergency.

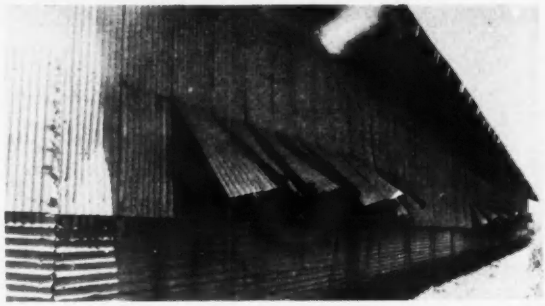
★ ★ ★

FIRE PREVENTION WEEK

FIRE Prevention Week, October 4-10, 1942, is undoubtedly the most important week on the fire department calendar this year. It is the opportunity for every fire department to tell the home folks about the importance of preventing needless loss of irreplaceable materials by fires resulting from carelessness or from neglect of known fire safety rules.

At this time each fire department should be making plans for an outstanding Fire Prevention Week observance. To help with this job the N.F.P.A. has sent to all member fire departments copies of the various Fire Prevention Week publications shown on the adjoining page. These various items may be purchased at the prices listed, by writing to the National Fire Protection Association, 60 Batterymarch St., Boston, Mass.

VOLUNTEERS LICK COTTON WAREHOUSE BLAZE



As many firemen in the South know, a cotton warehouse fire is difficult to handle and frequently results in a large loss. Chief R. A. Massey of the Memphis, Texas, Volunteer Fire Department sent the above pictures to show that such a fire may be successfully handled by a small fire department. Fire was discovered by the night watchman near the middle of the 200-foot long frame metal-clad building. After the alarm had sounded but before firemen arrived, flames flashed over the entire contents of the warehouse. Fortunately, the building was kept closed until water lines were laid. A 2½-inch pumper line from a public hydrant 2,000 feet distant was used to supply two 1½-inch lines with spray nozzles. A line was also taken from a 1½-inch private hydrant on a 4-inch main. When the hose lines were ready holes were opened in the walls at 20-foot intervals and lines operated until the fire was controlled. Then the warehouse doors were opened and the roof ventilated to permit overhauling at close range. Later the bales of cotton were moved outside the warehouse as shown in the upper picture and were kept under water protection. It is estimated that in spite of the flash fire, limited water supplies, and large area wooden frame construction of the building, nearly two-thirds of the value of the cotton was saved.

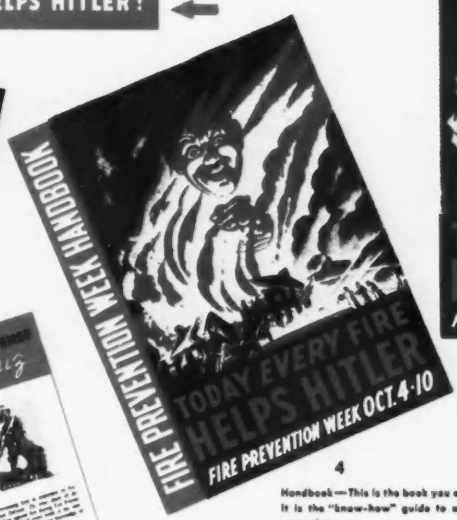
OCT. 4-10 FIRE PREVENTION WEEK PROMOTION

MAKE EVERY MINUTE COUNT!

1 Town Plaster—Red, White, and Blue. 3½" x 12". For posting on store windows, billboards, vehicles, etc.

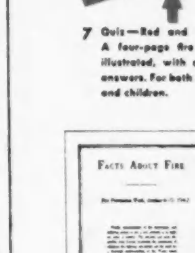
2 Poster—Red and Black. 12" x 16". A dramatic, timely poster for display in countless ways.

3 Folders—In several colors. Each is 6¼" x 3¼". For including in letters, home distribution, etc.



4 Handbook—This is the book you are reading. It is the "know-how" guide to a successful campaign.

6 Flyer—Red and Black. 5½" x 8½". A colorful envelope stuffer, a reminder of the menace of fire in wartime.



7 Quiz—Red and Black. A four-page fire quiz, illustrated, with correct answers. For both adults and children.

5 Picture Book—Red and Black. 16 pages of outline drawings of fire hazards, for coloring by children.

PRICE LIST

1. Town Plaster — $.50 per hundred, $3.50 per thousand.
2. Poster — $1 per hundred, $8.50 per thousand
3. Folders — $1.50 per hundred, $8.50 per thousand.
4. Handbook — $.50 per copy, reduction on quantity orders.
5. Picture Book — $.05 per copy, $4 per hundred, $30 per thousand.
6. Flyer — $.50 per hundred, $3.50 per thousand.
7. Quiz — $1 per hundred, $8.50 per thousand.
8. Booklet — $.25 per copy.
9. Pamphlet — $.05 per copy, $3.50 per hundred.
10. Publicity Packet — For Fire Chiefs. — $.25 per packet.

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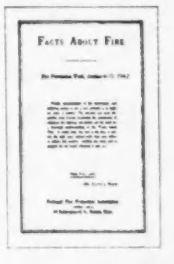
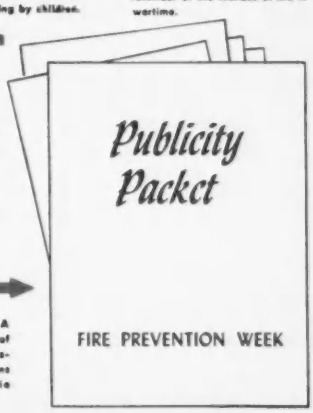


9 Pamphlet — "Facts About Fire." Discussions and statistics on fire. Of great value to speakers, editors, writers.

8 Booklet—"Employee Organization for Fire Safety." An excellent practical guide for business and industry.



10 Publicity Packet — A step-by-step packet of instructions on Fire Prevention Week. Contains news stories, radio scripts, etc.

NATIONAL FIRE PROTECTION ASSOCIATION • INTERNATIONAL • 60 BATTERYMARCH STREET, BOSTON, MASS.

PRINTED IN U.S.A.

FIRE PREVENTION—for $5.00

BY CHARLES D. HESELTINE,
FIRE PREVENTION BUREAU,
SOUTH PORTLAND, MAINE

THE well intentioned fire chief of the average small city or town favors fire prevention work. He has at one time or another conferred with the "powers-that-be" regarding some method of carrying out a fire prevention program. The usual result has been a pained discussion of the over-strained budget, a coming election, and conditions in general. Result: "Nothing doing at this time!"

Strange though it may seem to many fire officials, one lone five dollar bill is enough to start action on a fire prevention program. Most, if not all, fire department budgets can stand that strain. This is an investment that will repay both the fire department and the community many times over.

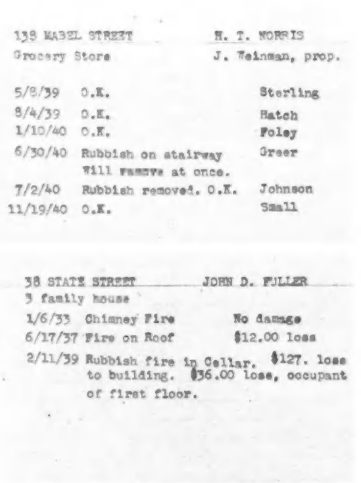
Now, there is little spectacular about fire prevention work. It is a day in and day out routine that is seldom glamorized on the motion picture screen or in the daily press. When a block of buildings is lost by fire the papers fill their front pages with headlines and pictures. But when enough potential hazards have been removed to save the equivalent of ten blocks from destruction, your publicity usually consists of a one line reference in the annual report merely stating the number of inspections made.

However, time has proven the value of a year round fire prevention program. While many of the smaller departments hesitate to expand their efforts in this direction because beset by fears as to the possible cost, the larger cities have pushed this work to the fore until the elimination of fire causes has become a leading fire department activity.

Thus it is of interest to each fire department to learn how to start and to operate a fire prevention bureau. We must set up our fire prevention organizations. Then if our city fathers insist on being shown we will be able to confront them with actual facts and figures. And our five dollar investment can be used to do just that—to obtain the few file cards and report sheets needed to make a modest start.

To develop such a program in a small community, the chief must assume the burden of the extra work or assign some one man to handle it under his supervision. The department clerk can be fitted into this job with only a slight increase in paper work.

Our first step is to procure 3 by 5 inch file cards such as may be bought at a 5 and 10 cent store. Upon these



138 MABEL STREET — N. T. MORRIS
Grocery Store — J. Weinman, prop.

5/8/39	O.K.	Sterling
8/4/39	O.K.	Hatch
1/10/40	O.K.	Foley
6/30/40	Rubbish on stairway Will remove at once.	Greer
7/2/40	Rubbish removed. O.K.	Johnson
11/19/40	O.K.	Small

38 STATE STREET — JOHN D. FULLER
3 family house

1/6/33	Chimney Fire	No damage
6/17/37	Fire on Roof	$12.00 loss
2/11/39	Rubbish fire in Cellar. $127. loss to building. $56.00 lose, occupant of first floor.	

The upper card shows how firemen's inspection reports for a given building are entered on a file card by the South Portland, Maine, Fire Department. The card below shows how building loss data is tabulated for each building so that inspectors know at a glance the previous fire record for any building they plan to inspect.

cards will be entered such information as the firemen turn in after each day's inspection routine. This data should consist of the names of both owner and occupant, street address, type of occupancy, date of inspections and by whom made. Remarks should also be entered regarding the condition of the building and contents and any action taken. Most cards will be merely initialed "O.K." after the first inspection. Where a complaint has been entered and definite steps taken by the department to remove certain hazards, the original white card may be replaced by a pink card which will serve as a "tickler" for future reference. The pink cards will command special attention from the inspectors.

ANOTHER set of cards will contain the names of property owners and tenants in whose premises fires have occurred. In setting up such a record, it is well to extend the file backward over a period of ten years if fire records are available. Many property owners, through negligence or through failure to comply with fire laws and regulations, will have had several fires in this period of time. Such a fire record tabulated for each property enables the inspector to know what fires have occurred in buildings he is to inspect.

In addition, a listing of buildings involved in fires during a period of years, showing the loss to both buildings and contents, throws light on persons responsible for fires. It will be found from this record that certain buildings show up consistently. We found that one such building had experienced one or more chimney fires annually over a period of eight years. A letter to the owner of the premises in the early fall resulted in the cleaning of the offending flue and no further alarms have been sounded for this cause.

The personnel of a fire prevention bureau may consist of the fire chief and the building inspector, together with the fire department member or officer who is to serve as the head of the bureau. This man may be the chief clerk of the department. Much can be accomplished by the fire and building departments working in close cooperation.

ALL interested members of the fire department should be given the privilege of making the inspections. In this way each man will acquaint himself with the buildings liable to fire in his locality. He will find that when actually engaged in fighting fire, the knowledge thus gained will aid him immeasurably in locating stairways, fire doors and other important features of the building involved. The experience the firemen gain from an inspection assignment is comparable to frequent workouts at the training tower or in other drills.

Naturally, every man should be instructed as to the correct procedure before he is permitted to go out into the community as an inspector. It would be just as wise to send a novice out to a fire to operate a pumper as to allow a green man to conduct regular inspections without instruction. The inspectors are meeting the public and if capably coached can do considerable missionary work for the department. They must be interested in their objective. Men who are not so inclined are better assigned to other types of work.

A good fire prevention handbook will provide needed technical assistance to the officers and inspectors. On his first visit, a fireman must make known his mission to those in authority and ask their cooperation. He should also suggest that a guide go with him to show him through the plant or building. All

floors and sections should be visited but the inspector should be careful not to impede business activities.

The firemen should ascertain that watchmen and other occupants have the telephone number of the fire department readily available and know the location of the nearest fire alarm box and its method of operation. Through such efforts delayed alarms can be reduced to a minimum.

Inspectors should be provided with simple inspection forms on which they may make notes or report conditions found on their trips. Several types of forms are available or the chief may wish to devise an inspection form from his own experience and have it reproduced locally. These forms should be filed after the clerk has compiled his card records.

In a typical small community Main Street is the accepted starting point in a routine check-up. Taking the business places in order, basements, sales floors, and attics should be inspected. The inspector will order the immediate removal of any waste accumulations, making a note to return within a few days to see that this has been done.

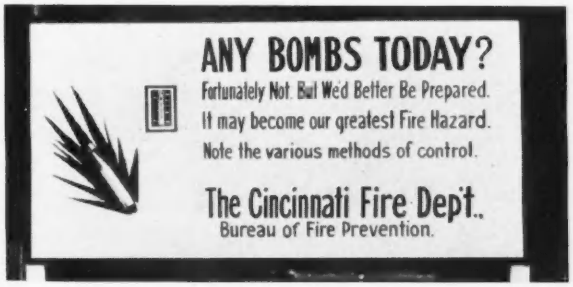
Factories, industrial plants, large farms, apartment houses and dwellings may also come under the scope of the inspector. Each district will be inspected by the local fire company responsible for its safety. The success of the inspection service lays in its continuity. Monthly inspections may be impracticable because of manpower limitations, but periodic inspections must be maintained with a regular frequency to assure success. These inspections may be conducted on a quarterly or a semi-annual basis.

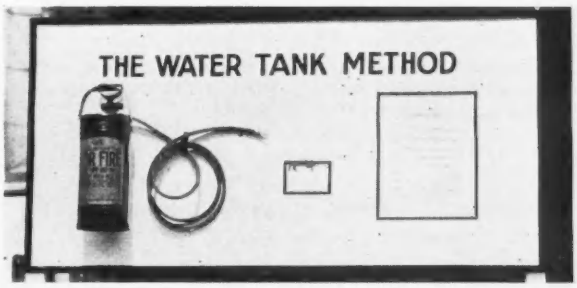
WHERE complaints are entered regarding serious hazards, the head of the bureau may elect to make a reinspection. Thus he is able to determine the seriousness of the hazard and order corrections to dispose of the situation. If sufficient authority is not vested in the head of the bureau, he can bring the matter before the fire chief and building inspector for action. Such double checking of the initial inspection will offset criticism of the judgment of the original inspector in matters involving complaints.

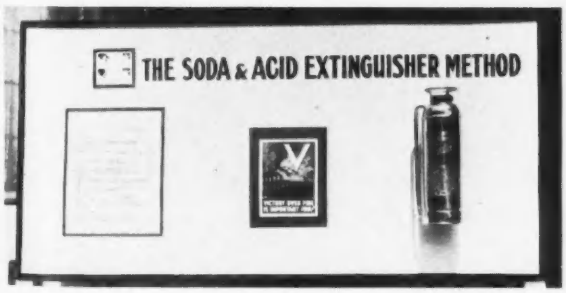
The department that undertakes an inspection program will create a favorable impression among the citizens and will be laying the groundwork for a program that will result inevitably in a reduction in fires.

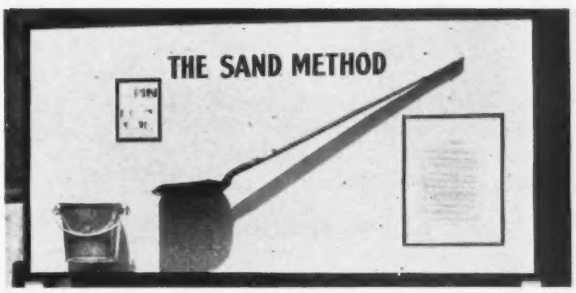
By making the small beginning in fire prevention suggested here the fire chief will be able to approach the town or city council with specific recommendations for ordinances covering any special problems he has at hand. He will also be able to win adequate financial support for an expanded fire prevention program. Our department has recently been granted a $500 budget for fire prevention work as an outgrowth of our $5 investment..

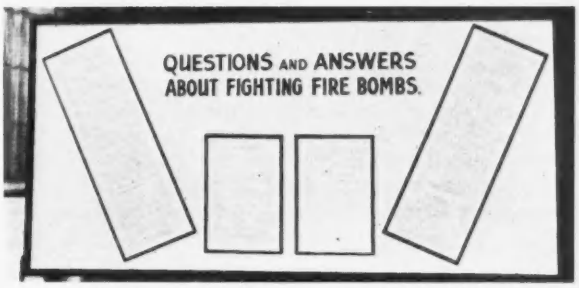
CINCINNATI TEACHES CITIZENS TO CONTROL FIRES FROM BOMBS


ANY BOMBS TODAY?
Fortunately Not. But Wed Better Be Prepared.
It may become our greatest Fire Hazard.
Note the various methods of control.
The Cincinnati Fire Dep't.
Bureau of Fire Prevention.









The Fire Prevention Bureau of the Cincinnati Fire Department under the direction of Fire Marshal Louis G. Schraffenberger has been noted for its use of novel methods to attract the attention of the public to fire prevention subjects. The latest ingenious method of educating the citizens of Cincinnati in fire control has been the use of large bulletin boards as illustrated above to show the various techniques of controlling fires from fire bombs. A separate bulletin board is used to explain each method. It will be noted that the actual appliances are illustrated and the amount of written explanatory material on the boards is kept at a minimum.

Fire and Water Department Cooperation for Defense

BY R. E. TARBETT,
CHIEF SANITARY ENGINEER,
U. S. OFFICE OF CIVILIAN DEFENSE

WHILE we may not expect air raids of the intensity experienced in Great Britain, we should be prepared to handle conditions resulting from token raids. A token raid does not necessarily mean a few enemy planes flying over a target area and dropping a few bombs, but in all probability would be similar in type and intensity to our raid on Tokyo. It is not unreasonable to assume that one of these raids might result in fifty or more water line breaks with at least six or more occurring in mains of twelve inches or over in size. These breaks might be spread over a city so that entire sections of the distribution system in the bombed area would have to be shut off. In such an event water for fire fighting purposes would have to be obtained from auxiliary sources.

In many cities firemen have acquired a fairly intimate knowledge of the water system, particularly as to the location of the larger mains and fire hydrants. It is essential that all regular and auxiliary firemen familiarize themselves with the water distribution system and that they be properly instructed in the operation of fire hydrants. Firemen should not operate valves on the water distribution system as the improper handling of hydrants and valves may cause more damage to the waterworks systems than an aerial bombing. As an example, a letter written by the Chief Engineer of the Board of Water Supply, Honolulu, Hawaii, and received by the Secretary of the American Water Works Association reads in part as follows:

"I am sorry that I cannot give you any detailed information regarding the water situation here at this time, but it is no military secret that the Honolulu water supply was undamaged by the raid on December 7. We were highly amused at the photograph in Life showing a water main that had been 'bombed.' The picture was that of a break in an old main caused by the enthusiasm of an amateur fireman who closed a hydrant too quickly."

There are certain parts of all cities where water service is dependent upon a single main. With industrial plants located in outlying sections the normal supply may be sufficient to furnish sprinkler protection, but be entirely inadequate to permit fire fighting by hose streams. It is essential that particular attention be paid to these plants, especially those engaged in defense work. It should be the duty of the chief of the fire department, through the local civilian defense authorities, to see that these plants are provided with an adequate auxiliary supply of water for fire fighting purposes.

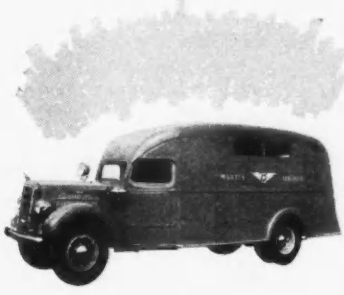
THE first step in the preparation of plans for effective fire protection is a survey to determine the possibility of the community receiving aid through interconnections with an adjoining water supply system. Although many communities have such interconnections, more could be provided. The second step of this survey should be to determine if it is possible to interconnect with the municipal system, private water supply in manufacturing plants, ice plants, hotels or other large users of water. Where an interconnection is possible, the local and state board of health should give their approval before the connection is made. The third step would be a survey covering possible use of water from swimming pools and other sources, such as those used for cooling purposes in manufacturing plants, etc. Any ponds, rivers, or other large bodies of water should be investigated and if small streams are available the feasibility of damming these, either permanently or temporarily, should be studied. The plan should definitely set forth the method of utilizing these auxiliary supplies. Provisions should be made so that fire pumpers can be driven to and placed so that suction can be taken from these auxiliary supplies.

When fire protection is poor because of an inadequate water supply and where there are large plants engaged in war work, the possibility of ground storage tanks should be thoroughly studied. This method is used in some western cities where water service has been interrupted due to earth shock. The capacity of such ground storage ranges upward from 200,000 gallons.

FREDERICTON, N. B., HAS LADIES' FIRE CORPS

Chief Karl A. Walker, Fredericton, New Brunswick, Fire Department (Member N.F.P.A.) claims to have the first Ladies' Auxiliary Fire Service Corps in Canada. The upper photo shows Chief Walker leading a group of his uniformed fire ladies at a recent drill. These women fire fighters are trained to handle hose streams and do other fire fighting tasks. Below, two of the Fredericton Department's trailer pumpers taking suction from a river are shown in a test in which 1080 gallons (Imperial) were supplied to a 2-inch nozzle of a deluge set.

"We'll have t'grease the pole if we're gonna catch the MACK!"



Mack model type 505 emergency truck in use at Martin Aircraft Co.

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Mack

Fire Department Operations During Blackouts

BY CHIEF FIRE MARSHAL
A. J. MULLANEY
CHICAGO FIRE DEPARTMENT

A digest of a paper presented before the Illinois Fire College at Champaign, Illinois, June 18, 1942.

EXPERIENCE over the years has shown the urgent need for sufficient illumination at fires. The history of fire departments will show that in recent years through the use of flood lighting units, the better illumination has tended to increase the efficiency of fire control operations and lessen the number of accidents involving injury and loss of life. Consequently, when artificial lighting equipment is unavailable, fire department operations under blackout conditions present a very definite major problem. The solution of this problem will require study and training in the execution of evolutions under blackout conditions.

Test or practice operations or responses under blackout conditions should be held in the several fire districts in which war activities are carried on. The drills should be in the vicinity of the industries involved so that fire department members will be thoroughly familiar with the various streets, and alleyways about the plants, and will have a first hand knowledge of the locations of doors, stairways, elevator shafts, hydrants, cisterns and other structural and protective features involved.

While the value of training under blackout conditions cannot be discounted, despite such instruction and drill, the odds against efficient fire fighting during a blackout are great. The strange circumstances of attempting to reach a fire under conditions of total blackout when almost no headlights will be available, can well cause a fireman to hold his breath.

IN attempting to formulate a plan of fire-combat procedure it might be well to devote a little time to so-called "blindfold" drills as has been suggested by some fire service instructors. Personally, I am not prepared to embrace this theory without more extensive study and practice. Members of a ladder company, for instance, could practice and drill blindfolded until they attained a medium of efficiency enabling them to go over familiar ground and pick up a ladder, carry it 100 feet, place it and elevate it against a wall. But to take these same ladder company members to an unfamiliar area and expect them to drill in the same efficient manner as they did over familiar ground would, I think, be expecting the impossible. Blindfold drill is much more difficult to endure than the same drills without blindfold but under conditions of utter natural darkness.

Let us consider briefly the situation during an actual air raid during a blackout. All of the bombs which do not penetrate buildings but which land in streets, alleys, parks, and vacant lots and which it is estimated may average 830 out of every 1,000 bombs dropped, will burn visibly for 15 to 20 minutes if left alone. These bombs burn with an intense, brilliant, dazzling white light and give off a large volume of white smoke. This intense light will be more conspicuous than hand flashlights or the subdued colored lights on fire apparatus, or shielded floodlights on the special light producing equipment.

If, in addition, the enemy raiders drop "parachute flares" these will drift over a city and perhaps burn from 20 to 30 minutes. An ample supply of such flares can illuminate a large area as bright as day. Thus, if parachute flares are used, the blackout loses much of its value. Why deprive the fire department of adequate driving lights while responding to fires while these conditions exist?

FROM personal experience in witnessing several blackout tests, lights such as neon signs and other illuminated electrical advertising display signs are quite conspicuous at an altitude of 12,000 feet.

With almost total blackout on a moonlight night the shore line of Lake Michigan was most conspicuous while flying over Chicago at 9,000 feet. At 12,000 feet various war industrials that did not black out and such buildings having roof skylights or saw-tooth roof construction appeared like huge skating ponds.

The reflection of light from windows of tall structures that did not black out, appeared like a huge bank of fog, ascending from the buildings.

Smudge pots intended to produce smoke to aid the blackout of a vital area were clearly discernible at an elevation of 9,000 feet. These smudge pots consisted of 55-gallon metal drums filled with burning and smoking material. As the smudge pots were extinguished the snuffing out process was also quite conspicuous.

From the lower altitudes of 2,000 to 4,000 feet even automobile tail lights and traffic lights are definitely noticeable. Also noticeable were temporary lighting schemes devised to camouflage certain areas.

IT is not presumed that any of our seacoast cities would have to suffer the sustained bombing that the German air force inflicted on various English cities or that the British air force is now inflicting upon German cities. We in the middle west are extremely fortunate that any raids we may have will most probably be of the nuisance type and not of prolonged intensity. In view of these facts, I am of the opinion that we in the central areas should be permitted at this time to pattern fire department response and operations during any air raid blackout to practices called for by an attack of the nuisance type.

The resultant fire damage due to fires that may get out of control as a result of delayed response and slowness in getting into action may be more disastrous than the possible bomb damage caused by a little illumination used by fire fighters during the period of response and during the early period of fire fighting activities. Nevertheless, initial response to all fires during blackout periods should be held to a minimum. Fire fighting action should be taken with dispatch using only such illumination as is consistent with the possible return of bombers. Immediately after a fire is under control it is of utmost importance that all equipment not absolutely required to handle the situation should be sent back to quarters as soon as possible.

In conclusion, here are a few suggestions that may prove helpful when working under blackout conditions:

1. Train fire department personnel and auxiliary firemen at night on important fire fighting evolutions so that the lack of vision may be offset by an increased dependence upon the senses of hearing and feeling.

2. Retain control of fire alarm com-

munications and keep in touch with headquarters wherever possible.

3. The first commanding officer arriving at the scene should be required to make a survey of existing conditions and report to the fire alarm office which will check with civilian defense control center.

4. Abide by all blackout regulations while in quarters.

5. While responding to fires during air raids, the apparatus should be driven at a speed consistent with the safety of the public and the fire department personnel.

6. Drive with adequate lighting.

7. Initial response of apparatus during blackouts shall be held to a minimum. Additional help to be sent when requested by the first officer at the scene.

8. Instruct and train civilians in the control of fire so as to minimize the work of the fire department during blackouts.

9. Encourage individual initiative among fire department personnel and among other kindred agencies so that any situation may be met by sensible and reasonable action.

Emergency Council of Rockland Co., New York, Reports Accomplishments

N.F.P.A. Member, Captain William Paul Babcock of the Nyack Fire Patrol, Inc., Nyack, New York, believes that fire departments having first aid or rescue squads might be interested in the accomplishments of the Rockland County Emergency and First Aid Council, Inc., an organization composed of 26 rescue squads in Rockland County, New York. This organization, which Captain Babcock serves as secretary, has been in operation just under five years. Already the following impressive list of projects has received the attention of the Council:

1. Local classes were organized for the training of first aid instructors. These instructors have trained 2,000 first aiders.

2. The first local blood plasma bank in the county for peace-time use was started.

3. Assistance was given in the organization and training of additional first aid squads.

4. A "mock disaster mobilization" was conducted in cooperation with the American Red Cross, and a first aid contest was held concurrently.

5. Legislation was sponsored to permit small communities to adopt fire control regulations by reference to the titles of recognized standards.

6. Improvements in first aid techniques were developed for presentation to the American Red Cross.

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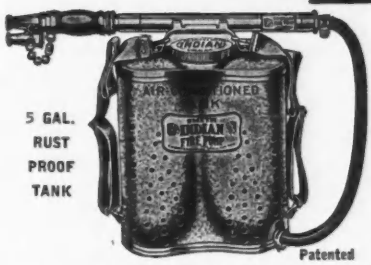

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Forest Fire Protection Receives Attention from Defense Agencies

AMONG the important resources of the United Nations are the great forests of the United States and Canada Forest fires in wartime present a serious defense problem. Not only are valuable stands of timber and watershed growth subject to destruction by such fires but vital power transmission and communication lines running through forest lands may be interrupted. In addition, such fires present a danger to any communities located nearby.

Obviously, in wartime it is frequently difficult to get sufficient numbers of men to promptly control a threatening forest blaze. This is particularly true when weather conditions are such that a number of serious fires are experienced simultaneously in the same region. Furthermore, the experience of many years has taught that training in specialized forest fire fighting techniques is almost as important a factor as the total number of men that can be mustered against a given fire.

Forest fire dangers have been recognized in the defense plans of both federal and state defense agencies. A forest defense coordinator is working with the U. S. Forest Service in an extensive program designed to solicit the cooperation of the public in forest fire prevention and protection. One project already under way has been the organization of a Forest Fire Watchers Corps made up of all interested adult persons planning to visit the U. S. National Forests. Members of the Corps are asked to help in spotting and prompt reporting of forest fires. They are expected to urge persons using the forests to be careful with smoking materials and campfires. Members will not be required to fight fires but may volunteer to do so.

As a means of overcoming the shortage of manpower for forest fire fighting the U. S. Forest Service in cooperation with OCD and other defense agencies is planning an organization of auxiliary forest fire fighters to augment the depleted regular forest fire fighting forces.

IN at least two states special efforts are being made to train boys of high school age to serve as auxiliary forest fire fighters. In California the Division of Forestry has issued a 48-page manual entitled Rural and Forest Fire Control Manual. This is being widely used in the schools of the state to train high school and junior college students to be ready to take jobs in State and U. S. Forest Service fire crews. The manual prepared with the cooperation of the State Department of Education is intended to provide the necessary background material for persons participating in rural and forest fire control training programs. It is designed for use in connection with actual field training in the use of fire tools and methods of fire control.

Subjects covered in the manual include principles of fire control for forest and brush fires, grain and grass fires, and structural fires. Methods of fire control, organization for fire control, and home fire prevention are also covered in the fifteen chapters or lessons covering both forest and farm fire safety.

IN New Hampshire efforts to train youths to supplement the forest fire fighting forces has centered around the expansion of a forest fire prevention program begun as a 4-H Club Forest Ranger project started in 1939 and now known as the Junior Farm and Forest Fire Control Program of New Hampshire. Organizations sponsoring the program are the 4-H Department of the University of New Hampshire Extension Service; the State Forestry and Recreation Department; and the Division of Auxiliary Firemen, State Council of Defense.

The revised program is divided into two parts. Division I, the 4-H Fire Rangers, is a fire prevention program for boys from 10 to 15 years of age. The objectives of this division of the program are: 1. To teach what the state and local fire protection organization is and the laws relating to fire permits. 2. To teach methods of locating and reporting fires, including fire patrol work. 3. To teach what some common farm and home fire hazards are and how to avoid them. 4. To teach the proper methods of building fires in the open.

Division II of the program, known as the "Junior Fire Fighters," is a fire control and suppression program for boys of 15 to 21 years of age. The objectives of this program are:

1. To teach the different methods of fighting forest fires. 2. To teach fire patrol work. 3. To teach some of the common rural fire hazards and their control. 4. To demonstrate first aid treatments most useful to firemen.

For each of the divisions of this program a leaders' manual has been prepared.

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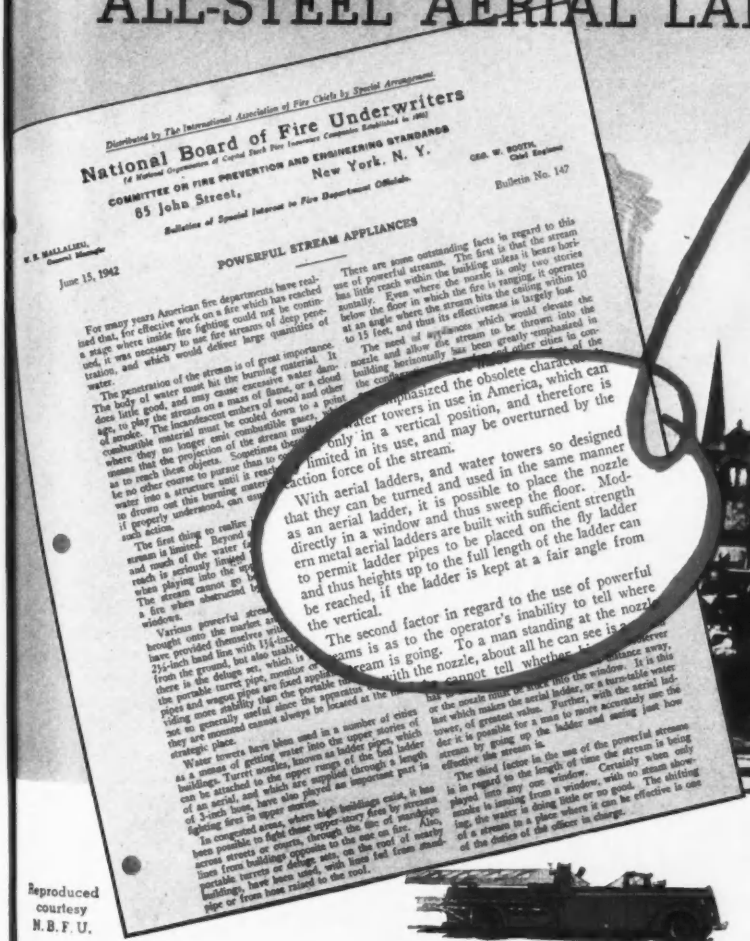

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National Board of Fire Underwriters

(A National Organization of Capital Stock Fire Insurance Companies Established in 1866)

COMMITTEE ON FIRE PREVENTION AND ENGINEERING STANDARDS

85 John Street, New York, N. Y.

GEO. W. BOOTH, Chief Engineer

Bulletin of Special Interest to Fire Department Officials. Bulletin No. 147

H. S. MALLALIEU, General Manager

June 15, 1942

POWERFUL STREAM APPLIANCES

For many years American fire departments have realized that, for effective work on a fire which has reached a stage where inside fire fighting could not be continued, it was necessary to use fire streams of deep penetration, and which would deliver large quantities of water.

The penetration of the stream is of great importance. The body of water must hit the burning material. It does little good, and may cause excessive water damage, to play the stream on a mass of flame, or a cloud of smoke. The incandescent embers of wood and other combustible material must be cooled down to a point where they no longer emit combustible gases, before means that the projection of the stream must be such as to reach these objects. Sometimes there is no other course to pursue than to [illegible] water into a structure until it reaches the seat of the fire if properly understood, can [illegible] such action.

The first thing to realize [illegible] stream is limited. Beyond [illegible] and much of the water [illegible] reach is seriously hindered [illegible] when playing into the [illegible] The stream cannot go [illegible] a fire when obstructed by [illegible] windows.

Various powerful streams [illegible] brought onto the nozzle and [illegible] have provided themselves with [illegible] 2½-inch hand lines with 1¼-inch [illegible] from the ground, but also [illegible] there is the deluge set, which is [illegible] the portable turret pipe, monitor or [illegible] pipes and wagon pipes are fixed appliances [illegible] not to generally useful since the apparatus [illegible] viding and must always be located at the [illegible] they are mounted cannot always be placed at the most [illegible] strategic place.

Water towers have been used in a number of cities as a means of getting water into the upper stories of buildings. Turret nozzles, known as ladder pipes, which can be attached to the upper rungs of the ladder, are part of an aerial, and which are supplied through a length of 3-inch hose, have also played an important part in fighting fires in upper stories.

In congested areas, where high buildings exist, it has been possible to fight these upper-story fires by streams across streets or courts, through the fire ef. Also, from buildings opposite to the one on fire. [illegible] portable turrets or deluge sets, on the roof of nearby buildings, have been used, with lines of fast from ground pipe or from hose raised to the roof.

There are some outstanding facts in regard to this use of powerful streams. The first is that the stream has little reach within the building unless it bears horizontally. Even where the nozzle is only two stories below the floor in which the fire is ranging, it operates at an angle where the stream hits the ceiling within 10 to 15 feet, and thus its effectiveness is largely lost.

The need of appliances which would elevate the nozzle and allow the stream to be thrown into the building horizontally has been greatly emphasized in [illegible] the conflagrations which have visited other cities in [illegible] the obsolete character of [illegible] water towers in use in America, which can only in a vertical position, and therefore is limited in its use, and may be overturned by the reaction force of the stream.

With aerial ladders, and water towers so designed that they can be turned and used in the same manner as an aerial ladder, it is possible to place the nozzle directly in a window and thus sweep the floor. Modern metal aerial ladders are built with sufficient strength to permit ladder pipes to be placed on the fly ladder and thus heights up to the full length of the ladder can be reached, if the ladder is kept at a fair angle from the vertical.

The second factor in regard to the use of powerful streams is as to the operator's inability to tell where the stream is going. To a man standing at the nozzle with the nozzle, about all he can see is a [illegible] cannot tell whether [illegible] into the window. It is this fact which makes the aerial ladder, or a turret-table water tower, of greatest value. Further, with the aerial ladder it is possible for a man to more accurately see the stream by going up the ladder and seeing just how effective the stream is.

The third factor in the use of the powerful streams is in regard to the length of time the stream is being played into any one window. Certainly when only smoke is issuing from a window, with no steam showing, the water is doing little or no good. The shifting of a stream in a place where it can be effective is one of the duties of the officer in charge.

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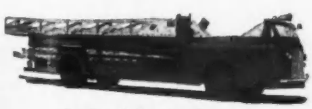
Service Aerial with 65′ all-steel power operated Aerial ladder.



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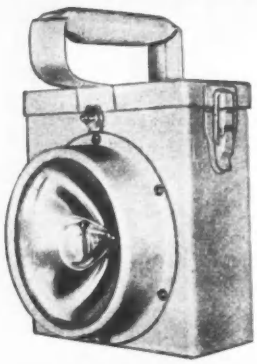

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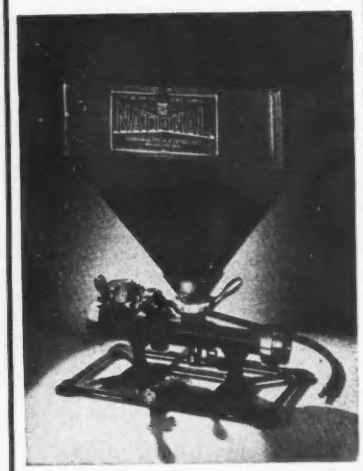

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FIREMEN'S TRAINING NOTES

New Mexico. Thirty-two local and two out-of-state fire departments were represented at the 1942 Fire School held at Las Vegas, June 8-10. Raton was the city selected as the meeting place for the 1943 school.

Chief Carl A. Ehrich for several years State Fire Department Instructor has been appointed fire chief at the Army Air Base at Roswell, New Mexico.

Michigan. Registration of 252 firemen from 83 communities topped all previous figures for the Michigan Fire College, which concluded a four-day session at Ann Arbor July 17. Two special courses, new this year, dealt with pumper operation and fire department inspection work.

Oklahoma. Undoubtedly the most comprehensive firemen's training program of any state this year was the one conducted last month at the school of Technical Training, Oklahoma A. & M. College, Stillwater, with the following schedule in effect:

August 3-7. — Teacher training courses to certify fire service instructors and Civilian Defense Corps instructors.

August 10-14.—Training in Rescue Practices. Course limited to certified fire service instructors.

August 17-22.—Unit courses in Ladder Practices, Hose Practices, Forcible Entry and Minor Extinguishment Practices, and Salvage and Overhaul Practices.

August 24-29.—Inspection Practices.

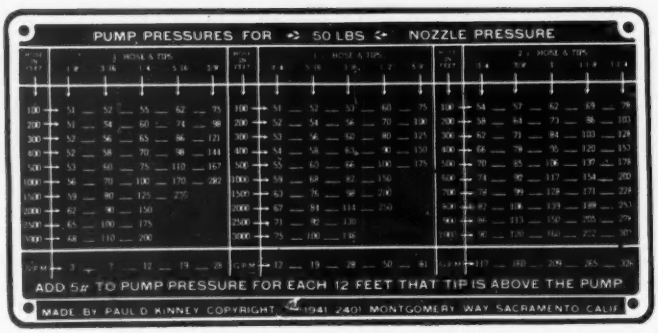
NEW PUBLICATIONS

A new 119-page book entitled "The Organization and Training of Industrial Fire Brigades" by Captain John C. Klinck of the Memphis Fire Department has been issued by S. C. Toof & Company, Publishers, P. O. Box 55, Memphis, Tenn. The book is attractively printed and illustrated. It has been prepared for use by fire department officers confronted with the problem of organizing and training private fire brigades within industrial plants and other large buildings. The book sells for $1.00 a copy. A special quantity discount is offered to fire departments and others engaged in industrial fire brigade training activities.

Underwriters Laboratories, Inc., 207 East Ohio Street, Chicago, has recently issued Bulletin of Research No. 26, entitled, "Electrical Conductivity of Snow and Gas Discharged from First Aid Carbon Dioxide Extinguishers."

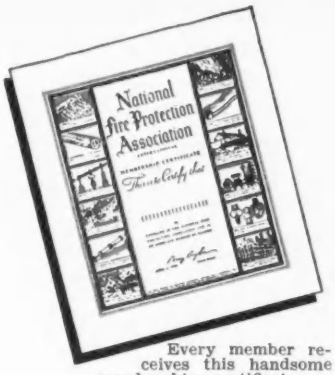
The A.R.P. Division of the Advisory Committee on Public Safety, New Hampshire State Council of Defense, has issued a 12-page pamphlet "Defense Patrol," suggesting organization for a combined defense force in small communities unable to man adequately all of the many specialized divisions of the usual Citizens' Defense Corps. Members of the Defense Patrol will be trained to meet any type of emergency regardless of previous specialized training. Emphasis is placed upon methods of fighting both building and forest fires, considered to be the chief dangers in the small communities. Requests for copies should be directed to State Fire Coordinator A. C. Hudson, New Hampshire Board of Fire Underwriters, Concord.

Causes of Fire and Explosions and Means of Prevention and Extinguishment, 26 pages, Educational Bulletin of the International Association of Fire Chiefs, Daniel B. Tierney, Secretary, Arlington, Mass.


PUMP PRESSURES FOR ➪ 50 LBS ➪ NOZZLE PRESSURE
ADD 5# TO PUMP PRESSURE FOR EACH 12 FEET THAT TIP IS ABOVE THE PUMP
MADE BY PAUL D. KINNEY COPYRIGHT 1941 2401 MONTGOMERY WAY SACRAMENTO, CALIF.

The task of remembering the different pump pressures required to supply various nozzle and hose layouts encountered in rural and forest fire work, makes a pressure chart on the apparatus a valuable aid to the pump operator. The chart shown above is being used by numerous fire fighting forces including those of the California State Division of Forestry. Made of metal in 4 by 8-inch size the chart is for sale by Paul D. Kinney, 2401 Montgomery Way, Sacramento, Calif., at a cost of $5 per unit with discounts for lots of six or more.

Membership in the N.F.P.A.

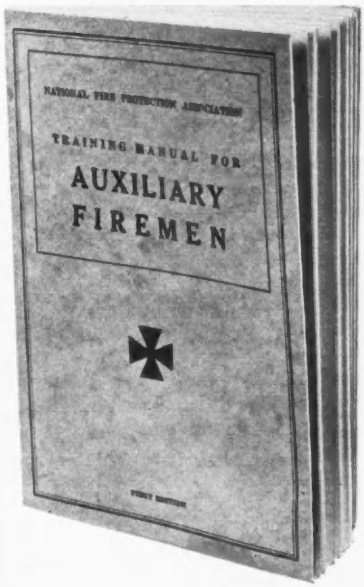


Every member receives this handsome membership certificate.

Membership with unusual advantages is available to fire companies and fire departments through the Volunteer Firemen's Section of the National Fire Protection Association. Here's the simple plan:

INDIVIDUAL membership in the National Fire Protection Association costs $10 per year. The membership plan for the Volunteer Firemen's Section is designed to give each fire company the advantages of N.F.P.A. membership. The fire company, as a member, receives at its headquarters a complete set of all regular N.F.P.A. literature, including the *Quarterly magazine*, as issued. In addition, as a special service to the Volunteer Firemen's Section, each fire company holding N.F.P.A. membership is entitled to have copies of the magazine VOLUNTEER FIREMEN sent to the home addresses of 10 firemen each month. If more than 10 firemen want to receive the magazine, an additional one dollar should be sent in with the membership fee for each fireman in excess of 10 enrolled.

Because of the large amount of material mailed to members, not less than $10 can be accepted from any company.



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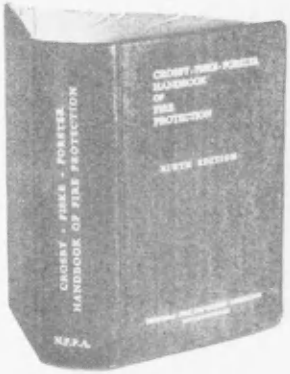

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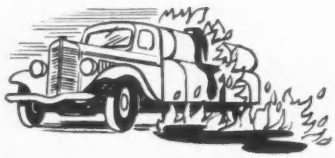
HOW DO YOU KILL FLAMMABLE LIQUID BLAZES?

Q. What are flammable liquid fires?

A. They are fires in oils, gasoline, solvents, paints, lacquers, and the like. Authorities call these Class "B" blazes and recommend extinguishers with a *smothering* or *blanketing* action.

Q. Will every type of extinguisher work on all kinds of flammable liquid fires?

A. No. Solid streams of water or water solution extinguishers are ineffective.



Q. What is a three-dimensional blaze?

A. It is a fire which burns at more than one level, as when a container ignites and spills a flowing stream of burning liquid over its sides. Carbon dioxide extinguishers readily handle this type of fire. Work from the bottom up. Kill the fire at the lowest level first.

Q. What is a running fire?

A. It is a flammable liquid blaze which occurs when a flowing stream becomes ignited. You fight this fire by working against the flow of the liquid. If a pipe is leaking, start at the extreme edge of the fire and work back toward the pipe. If a container is spilling its burning contents, work toward the container.

Q. What is a spill fire?

A. This is simply a fire resulting from liquid spilled on the ground or on the floor. Don't try to kill all of this fire at once, if it covers a large area. Start at one point, smother all flames there and continue, part by part, until the entire fire is out.

If you are outdoors, *keep wind at your back.*

Q. How about fires in open vessels?

A. Where possible, "bank" extinguisher stream (foam or vaporizing liquid) off inside wall of container. Don't squirt the stream directly on burning surface. Circle the fire. Work around, attacking blaze from various angles.

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